Smithville, North Carolina, 31st. Augusta, Ġeorgia, 4th. Pensacola, Florida, 1st, 3d. Vicksburg, Mississippi, 24th. Palestine, Texas, 6th, 7th, 10th, 12th, 25th. Little Rock, Arkansas, 24th. San Francisco, California, 9th, 10th. Lewiston, Idaho, 1st, 18th. Yates Centre, Kansas, 8th, 10th. Salina, Kansas, 12th. Creswell, Kansas, 9th. Campo, California, 5th. Albany, Oregon, 20th.

LUNAR HALOS.

Lunar halos have been observed in the various districts on the following dates:

New England: 1st, 2d, 4th, 21st, 22d, 25th, 27th, 28th, 29th. Middle Atlantic states: 1st, 3d, 4th, 5th, 19th, 22d, 23d, 25th to 30th.

South Atlantic states: 1st, 2d, 21st, 22d, 25th, 26th, 28th to 31st.

East Gulf states: 21st, 22d, 24th, 25th, 26th, 28th.

West Gulf states: 20th, 21st, 24th, 25th.

Ohio valley and Tennessee: 1st, 2d, 4th, 22d to 29th, 31st. Lower lake region: 1st, 11th, 20th, 22d, 25th, 27th to 30th. Upper lake region: 21st, 24th, 26th, 27th, 31st.

Upper Mississippi valley: 2d, 23d to 27th, 31st.

Missouri valley: 20th, 21st, 27th, 28th, 30th. Southern plateau: 6th, 23d, 25th, 26th, 28th.

Lunar halos were also reported from the following stations not included in the districts named above:

Cedar Keys, Florida, 27th. Eagle Pass, Texas, 25th.

Umatilla, Oregon, 1st, 27th, 28th.

MISCELLANEOUS PHENOMENA.

SUNSETS.

The characteristic of the sky as indicative of fair or foul weather for the succeeding twenty-four hours, have been observed at all Signal Service stations. Reports from 185 stations show 5,674 observations to have been made, of which 14 were reported doubtful; of the remainder 5,660 there were 4,738, or 83.7 per cent., followed by the expected weather.

SUN SPOTS.

The following record of observations has been forwarded by Mr. D. P. Todd, Director of the Lawrence Observatory, Amherst, Mass.:

DATE Aug., 1882.	No. o	f new	Disappear'd by solar rotation.		Reappear'd by solar rotation,		Total No. visible.		Remarks,
	Gr'ps	Spots	Gr'p	Spots	Gr'ps	Spots	Gr'ps	Spots	
1, 10 a. m		0	0	0	Û	U	2	251	
4, 4 p. m		0	•••••		0	0	1	12	
5, 4 p. m		U	0	2	0	0	ī	10	
6, 11 a. m		0	0	5	Q	0	1 3	. 5	
9, 9a.m		10	1	5	2	5	3	10	1
10, lp.ni		0	0	0	0	0	3	10	
11, 10 a. m	0	0	U	0	U	Ü	3	10	Three spots quite large.
13, 11 a. m	0	0	0	0	Q	U O	3	10	Turee spots quite large.
15, 10 a. m		0	Į ų	3 5	0	0	3	7	Three spots quite large.
16, lp.m	Ü	0	3	5	0	U		2 2	
17, 1 p. m		0	0	0	Ú	0		: <u> </u>	
18, 12 m	3	_8	0	0	0	į į	Ŧ	10	
19, 9 a.m		10	0	0	Ü	5	5 5	20‡	
20, 2 p. m	0	15†	Ü	0	0	0	۰	35‡	1
21, 12 m		0	1	1 1	Ü	0	4	35 <u>T</u>	
22, 4 p. m		5) ú	0	2	5	4	101	
24, 3 p. m		0	2	10	U	0	*	30‡	·
25, 5 p.m		Ú		0	0	U	+	80‡	
26, 1 p.m		0	0	U I	Ų,	0	4	20‡	
28, 8 a. m		Ü	0	5	. 0	0	4 5	15‡	
29, 8 a.m	1	10	Ų,	. 6	0	0	2	20‡	
30, 2 p. m	0	0	2	10	Ų	0	3	10‡	
81, 10 a. m	1	1	0	υ	1	1	4	10‡	

†Approximated. Faculæ were seen at the time of every observation.

Mr. H. D. Gowey, at North Lewisburg, Ohio, reports: Sunspots were observed on all clear days during the month. They

numerous on 23d. Mr. David Trowbridge, at Waterburg, New York, reports: 3rd, one group, six spots. 6th, one group, one spot; faculæ. 10th, three groups, five spots; probably two of the groups have appeared by rotation; the group of the 3d has disappeared by rotation; faculæ. 11th, three spots, (same as 10th,) six spots; faculæ. 12th, two groups, three spots; one group of the 11th gone out. 14th, two groups, three spots (same as 12th). 16th, one group, one spot; one of the groups of the 14th, has disappeared by rotation. 17th, one group, one spot (same as 16th). 18th, three groups, five spots; one group has appeared by rotation and one group has arisen. 19th, five groups, ten spots; two new groups have arisen. 20th, three groups, eleven spots; one group has disappeared by rotation. 21st, three groups, (same as 20th), nine spots. 22d, three groups, nine spots (same as 21st). 24th, two groups, four spots. 25th, three groups, eight spots. 28th, three groups, five spots. 29th, three groups, five spots. 30th, two groups, four spots. Of the spots seen on the 29th, but one can now be seen. The large group has disappeared by rotation; a faint group has arisen; and one group has gone out.

Captain John Carroll, of the s. s. "Hevelius," reported: Buenos Ayres, 10th. Observed a long black spot on the sun's disk. On the 20th, in S. 22°, W. 40°, observed one long black spot. From 21st to 25th two spots were observed. 26th, spots

disappeared.

The following record of observations has been forwarded by Mr. A. S. Bender, of Sacramento, California:

		_	_				<u> </u>						
DATE— Aug., 1862,		No. of new		Disappeared by rotation		Reappeared by rotation.		Total No. of		Remarks.			
		Gr'ps Spot		Gr'ps Spot		Gr'ps	Spots	Gr'ps	Spots				
3,	•	1	p.	m								40* 30*	Some spots coalesced,
4,		4	p.	m				 	ļ		1	15*	doing disappeared,
7, 9,	•	4	p. p.	m	2	25			1	1	3	25	Seems clear of spots. New spots broke out; one group of single spot, and one of sev- eral.
10,	•	1	p.	m	·						3	10	Spots coalesced or dis- appeared.
				m.,		2			********		4	10	Do.
13,	٠	1	p.	m			1	2			3	8	
										*******	2	8	One group disappeared.
						,	1	3	********		l î	3	
					.∤				1	1	3	4	
			•	m		5		ļ		********	4	9*	Perhaps the new groups may be but one.
				m.,		5	**********	j	ļ		5	20#	
21,	•	1	p.	m	1	1			••••••	*******	5	50*	Entire change of groups and great increase of spots.
23,	•	4	p.	m			ļ	 	·····	ļ	5	45#	One group partly dis- appeared by rotation.
24,		4	p	m	1	1	1	20	/	ļ	3	20*	Rest of group disap- peared by rotation.
25,		Ŧ	p.	m	1	5		 			4	25*	This group appeared near center of lower section.
26,		1	p.	m	-	.]	ļ	ļ	ļ		4	15*	
29,		4	p.	m			1	5	44445556		3	10*_	Some spots very dim.
30,		1	p.	m.,						*******	3	10*	
31,		1	p.	m.,			ļ		}	l	3	10*	}

^{*} Estimated.

METEORS.

New London, Connecticut, 8th: At 10:00 p. m., a brilliant meteor was observed, which for a short while, illuminated the whole heavens. It suddenly disappeared leaving a small cloud which remained visible for about three minutes. On the 12th, at 1:00 a. m., a similar meteor was observed. It left no cloud, but a sharp detonation of two seconds duration was distinctly heard after its disappearance. Numerous shooting stars were observed on the evening of the 17th.

Manasquan, New Jersey, 6th: Numerous meteors were observed during the evening. At 9:36 p. m., a meteor of unusual brilliancy appeared in the eastern sky, and pursued a northerly course, parallel to the horizon. It was of bright red color and the light was sufficient to cast well defined shadows. Before

disappearing it exploded like a rocket.

Freehold, New Jersey, 10th: More than thirty were meteors were least numerous on the 7th, largest on the 11th, and most observed between 9:00 and 10:00 p. m.; several were seen on

evenings of 11th and 18th. They were also seen on 13th, 14th,

New York, 4th: At 11:15 p. m., a meteor shot across the sky from northeast to southwest, leaving a cloud of redish color. At Poughkeepsie, it was observed to explode into three parts. On the evening of the 6th, a brilliant meteor was seen in this city and vicinity. The same meteor was probably observed in Connecticut, and as far east as Salem. In Albany, it was seen about 9:30 p. m., at which time the sky was obscured by clouds. Its appearance was preceded by a light similar to that of the moon. It suddenly shot out from the clouds and burst like a bomb into many pieces.

Barnegat, New Jersey, 5th: A brilliant meteor was observed at 9:30 p. m. Its course was from noatheast to southwest; and remained in view ten seconds. On the 14th, at 10:30 p. m. a similar meteor was observed to shoot across the sky from northeast to southeast, leaving a cloud resembling the tail of a

comet.

Fort Scott, Kansas: Brilliant meteoric displays on the even-

ings of the 9th and 10th.

Morgantown, West Virginia: The finest meteoric displays ever witnessed at this place, were observed in the evenings of

Russel, Kansas, 6th: A very bright meteor was seen in the west-northwestern, sky at 2:40 a. m. It was of pale yellow color and apparently about one-third of the size of the moon. It moved slowly and exploded into numerous fragments.

On the evening of 10th, from 9:25 to 10:25 p. m., thirty-two meteors were observed. They were mostly of reddish color, and shot, almost invariably from a point near the zenith to the southwest. Later they were observed flashing in nearly every part of the heavens, and left long bright trails. Several meteors were also observed on the evening of the 11th, but were not as numerous as on the previous evening.

Morrison, Illinois, 11th: Grand meteoric display from midnight to 2:00 a.m. Their general direction was from the constellation Perseus. Some left luminous trains, which remained visible for several seconds. On the evening of the 12th about one hundred meteors were counted from 10:00 to 11:00 p. m.,

when cloudiness prevented further observation.

Williamstown, Massachusetts, 10th: From midnight to 1:00 a. m., of 11th, one hundred and sixty meteors were observed mostly in the northeastern heavens. They were most numerous near the constellation Perseus, from or near which, they seemed to emanate. 21st: Brilliant meteor seen at 11:30 p. m. It started from a point about 15° east of the zenith and moved

eastward, leaving a long bright trail.

Fall River, Massachusetts, 4th: Numerous meteors were observed during the evening. At 10:00 p. m., one was observed in the northwestern sky, which exploded into several pieces. The fragments fell perpendicularly and were of various colors. Numerous meteors were observed on the evenings of the 5th and 6th; and on the 9th, more than fifty were counted from 8:00 to 10:00 p. m., moving mostly from northeast to southwest. Thirty meteors were counted on the 11th, from

Northport, Michigan, 6th: Numerous shooting stars were observed during the evening from 8.00 to 9.00 p.m., and du-

ring the early morning of the 7th.

New Market, New Hampshire, 11th: Two very brilliant meteors were seen during the evening, and on the 17th, several were observed.

Freehold, New Jersey, 13th: At 10:40 p.m. a brilliant meteor was seen at a point a little north of east at an altitude of 40°, and pursued a northerly course. It appeared to be about kirk, New York, on the same day. the size of the moon, and exploded before disappearing.

North Lewisburg, Ohio, 18th: A brilliant meteor was seen about 7.00 p.m. in the southern sky at an altitude of about 70°. It pursued a northwesterly course and was of blue, purple and yellow colors.

Springfield Massachusetts, 4th: Brilliant meteoric display at 9.00 p. m.

Kittyhawk, North Carolina, 4th: A brilliant meteor was observed during the evening (directly under the north star), which seemed to have ascended from below the horizon to an altitude of 10° and immediately descended out of sight.

Meteors worthy of less note have also been reported by vari-

ous stations as follows: Newport, Rhode Island, 4th, 6th, 9th. Boston, Massachusetts, 4th. Wilmington, North Carolina, 6th, 10th. Augusta, Georgia, 17th, numerous. Pensacola, Florida, 12th, very bright. Knoxville, Tennessee, 10th, 31st. Logansport, Indiana, 10th, numerous. Columbus, Ohio, 13th. Chattanooga, Tennessee, 13th. Milwaukee, Wisconsin, 10th. Fort Yates, Dakota, 16th. Tobacco Garden, Dakota, 4th, 6th. Keokuk, Iowa, 11th, numerous. Des Moines, Iowa, 10th. Davenport, Iowa, 9th to 12th, 16th, 21st, 23d. Madison, Wisconsin, 9th. La Crosse, Wisconsin, 20th. Yuma, Arizona, 2d, 4th, 7th, 9th to 14th, 16th, 24th. Pioche, Nevada, 2d. Winnemucca, Nevada, 11th. Umatilla, Oregon, 5th to 8th, 27th. Vevay, Indiana, 11th, numerous; 14th. Anna, Illinois, 10th, 13th. Morrison, Illinois, 10th.

Charleston, Illinois, 10th, 13th. Swanwick, Illinois, 10th, 11th, 12th, 16th.

Logansport, Indiana, 10th. Fort Scott, Kansas, 7th, 8th.

Russell, Kansas, 4th.

Yates Centre, Kansas, 1st to 10th. Salina, Kansas, 8th, 10th, 11th. Dexter, Maine, 10th, numerous.

Somerset, Massachusetts, 9th, 11th.

Rowe, Massachusetts, 15th. Fayette, Mississippi, 15th.

Atco, New Jersey, 6th, 10th, 14th. North Volney, New York, 9th.

Sateburg, South Carolina, 8th to 12th, 16th. Murfreesboro, Tennessee, 8th to 11th, 19th.

Lunenburg, Vermont, 4th. Woodstock, Vermont, 10th, 11th. Wytheville, Virginia, 9th.
Variety Mills, Virginia, 9th.
Beloit, Wisconsin, 16th.
North Platte, Nebraska, 8th, 9th, 10th.

Boise City, Idaho, 17th.

WATERSPOUTS.

Port Eads, 23d: At 2.45 p. m., two waterspouts formed under a cumulo-stratus cloud in the south and southwest. They had a progressive motion towards the west. The diameter of each was apparently about six feet. They disappeared at 2.50 p. m.

Buffalo, 11th: About 9 a.m. a waterspout is reported to have been observed beneath a black, whirling cloud. It consisted of a conical column of water from eighty to one hundred feet high. At Erie, the revenue-cutter, "Commodore Perry" reported having observed two waterspouts near Dun-

Bermuda, 30th: About 11:15 a. m. on the 14th instant, a very large waterspout was observed in the Great Sound, which lasted fully twenty minutes. It was immediately followed by a whirlwind, which, coming from a southwest direction, accompanied by a fearful noise, struck into Boss's Cove, sinking two sail boats at their moorings; then swept across the land, tearing up young trees, bushes, and even grass in its progress.

Captain James S. T. McLeod, of the schooner "John L. Thomas," in latitude N. 34° 08', longitude W. 72° 40', at 8:48 p. m., of the 20th, observed (about one and-a-half miles to the southward) the water to suddenly become violently agitated, and in less than two minutes rose to a height of two hundred feet, covering a space of two hundred yards in diameter and in this position about five minutes, when a spout suddenly formed from a black cloud over it, and in one minute afterwards ity disappeared.

SAND STORMS.

Coleman City, Texas, 6th. Stockton, Texas, 13th.

Camp Thomas, Arizona. 4th, 10th, 11th, 13th.

Phœnix, Arizona, 11th.

Umatilla, Oregon, 4th, 10th, 15th, 25th, 26th.

POLAR BANDS.

Nashville, Tennessee, 2d, 10th, 11th. Olympia, Washington territory, 16th. Fayette, Mississippi, 5th, 30th. Hastings, Michigan, 4th. Freehold, New Jersey, 10th. Vineland, New Jersey, 30th.

Woodstock, Vermont, 4th, 25th, 27th. Wytheville, Virginia, 10th, 15th, 18th, 19th, 22d.

EARTHQUAKES.

San Francisco, 9th: A light shock of earthquake was felt at 8:45 p. m.

Oakland, California, 8th: Light shock, attended by noise and

vibration from southeast to northwest.

Salinas City, California: Earthquake shocks were felt twice during the month.

ZODIACAL LIGHT.

Palestine, Texas, 4th, 21st, 27th. Nashville, Tennessee, 12th to 16th, 18th to 25th. Saint Vincent, Minnesota, 4th, 16th. Monticello, Iowa, 16th, 17th, 20th.

PRAIRIE AND FOREST FIRES.

Sandwich, Massachusetts, 10th: Forest fires are still burning one mile in width.

San Francisco, 11th: Reports from Shasta, state that extensive forest fires are raging in the county. Several residences on the outskirts of the town of Shasta and a number of fine orchards and vineyards have been burned.

Amherst, New Hampshire, 15th: Fires are raging in the vicinity of Merrimac, Amherst and Milford. The flames are spreading south and east from Pennipuck Brook and threaten Nashua.

New York, 5th: Great damage has been done throughout southern New Jersey by forest fires, which have been raging in the cedar and pine lands during the past week.

Poughkeepsie, New York, 18th.

Bismarck, Dakota, 30th.

Fort Stevenson, Dakota, 26th.

Tobacco Garden, Dakota, 7th, 8th, 10th, 11th, 13th, 18th, 21st, 23d, to 28th, 30th.

Huron, Dakota, 27th, 29th.

Fort Keogh, Montana, 10th, 22d.

Terry's Landing, Montana, 3d, 4th, 7th, 9th, 25th, 26th.

Deer Lodge, Montana, 25th. Fort Custer, Montana, 1st.

Helena, Montana, 17th, 25th.

Fort Buford, Dakota, 7th, 10th, 23d; 25th, an extensive prairie fire has been burning on the opposite side of the river for several days.

Cœur d'Alene, Idaho, 23d. Large forest fires have caused considerable damage to property in this vicinity.

Campo, California, 6th.

been burned over; 31st.

MIRAGE.

Little Rock, Arkansas, 13th. Indianola, Texas, 3d, 11th, 12th, 19th, 21st, 28th.

DROUGHT.

The effects of drought have been most severely felt in the having a violent rotary motion from right to left. It remained New England states, where it also prevailed during the month of July. The following reports indicate its extent and sever-

> Maine.—Lewiston, 13th: Owing to drought potatoes will not yield half the average crop. There is still some hope for corn if rain be not too long delayed. The lumber interests are most seriously affected, the water being so low in many of the rivers that the mills have suspended operations.

> Gardiner, 31st: Only 0.64 inch of rain has fallen here since July 13th.

Cornish, 26th: Weather very dry.

Portland, 31st: The drought has continued throughout the month, and has checked the growth of all crops, especially corn and potatoes. The greater part of the corn crop is being cut and fed to stock. Potatoes have dried up in the hills, and the grass in all the pastures is dead. Farmers are compelled to feed their stock as in winter.

New Hampshire: Grafton, 31st: The drought of July continued until August 7th, when it was slightly broken by the light rains of the 7th, 8th and 9th. The total amount of rainfall from July 13th to August 7th (twenty-four days) was 0.25. This being the growing period for corn, potatoes and other vegetables, those crops have been seriously injured, and not more than half of the usual yield will be produced. At the close of the month the pastures have dried up, and there is a scarcity of feed for stock. The foliage of the trees is beginning to fade.

Auburn, 31st: Drought is very severe, and crops are a general failure. Very little rain has fallen since July 5th.

Antrim, 31st: Very severe drought; many wells have become dry. The water is so low in many of the rivers that the working of mills at Manchester, Keene and elsewhere have been interrupted.

Vermont: Woodstock, 31st: The ground has been extremely in this locality and have burned over an area of country about dry throughout the month. The whole eastern section of the state is dry and dusty. The crop acreage is nearly one-third larger than last year; and crops started fairly, but the drought which is now prevailing will materially lessen the corn, potato and apple crops. The apple crop, which is corn, potato and apple crops. The apple crop, which is usually worth \$500,000, will not be worth half that sum this year.

Massachusetts: Springfield, 7th: Severe drought prevails; grass, in many places, is completely dead. 16th: Drought is still very severe; corn, in many places, is being cut to be used as provender. 19th: Drought still continues; fields of corn are now being cut to be used as fodder, which were, at one time, considered the finest in the state. The yield of potatoes will be small and of poor quality. The second growth of hay is an utter failure. About Fitchburg, the drought is particularly severe, no rain of consequence having fallen since July 1st. The water in springs and wells is very low. Reports from all parts of state show that the drought is generally severe.

Somerset, 31st: The drought of the past seven weeks has been very severe and has caused great loss to farmers. The pastures were dried up and the ground was baked and cracked by August 1st. Farmers were compelled to feed their stock throughout the month. Fields of corn are being cut for fodder. Springs and streams have dried and cattle are watered at wells, many of which are very low and some have entirely failed. Water for domestic purposes, in many instances, has to be hauled from distances of one-fourth to one mile.

South Lee, 31st: The month has been very hot and dry. Corn is almost a total failure and other crops have been seriously injured. The mills on the Housatonic river have been Newmarket, New Hampshire, 13th. Several acres have run by steam-power, during a greater part of the month, owing

to lack of water.

Connecticut: Hartford, 11th: Reports from various parts of the state indicate that the drought is very severe, and will prove disastrous to crops. The pastures are drying up and there will be no aftermath. The tobacco crop in most sections will be nearly a failure. Potatoes have ceased to grow, apples are falling off and drying up, and corn is so unpromising that farmers are cuting it for fodder. The springs and wells are everywhere reported nearly dry. There have been light showers in the northern part of the state, but they were not more than sufficient to lay the dust.

Southington, 10th: The drought is very severe; vegetation is dving. Farmers are compelled to feed their stock, owing to

the condition of the pastures.

New Haven, 9th: The ground is perfectly dry to a depth of three feet; pastures are failing; rivers are so low as to interfere with the operations of the factories. The Naugatuck river is lower than it has been for many years, and can be walked across below Waterburg. At Stormy Creek, twelve and half miles distant, drinking water is hauled a distance of four miles for use at the hotel. On the Thimble islands drinking water is being sold. Potatoes have ceased growing; and about half of the corn will not mature; green apples are falling from the

New York: Clyde, 6th: There has been no rain of any consequence in this section for three weeks, and the water in the Clyde river is extremely low. Wells and cisterns are drying up, and people are carting water from the river for household Corn and po atoes are suffering from drought. Greece, 7th: All crops are suffering from extreme drought. Potato tops in many places are dead; oats are ripening prematurely, and fruit is nearly a total failure. Poughkeepsie, 6th: dry weather of the past ten days has been very injurious to half verified; six hundred and twenty-one or 16.61 per cent. early part of the season, will be materially curtailed in con-fully verified.

sequence of drought. In some localities, cabbage is dying; and some vegetables have been pulled up to make room for other crops. Ardenia, 31st: Month has been hot and dry; streams and springs are very low.

Kansas: Creswell, 26th: Weather very hot and dry.

Leavenworth, 27th: The corn crop is suffering from drought. 29th: The rain of this date has greatly benefited crops.

Holton, 31st: During the month, the rains were very light and not sufficient to lay the dust. At the close of the month the ground is very dry.

Russell, 23d: Weather is very dry, and the corn crop is dying in consequence. Farmers are cutting it to be used as fodder. In the western part of the state, the crop will be a total failure.

INSECTS.

Starkville, Mississippi, 12th. The army worm is making its

appearance in this locality.

New Orleans, 5th. The cotton-worm has appeared in Madison and Teleciana parishes; 9th: The cotton-worm is reported to have appeared in the vicinity of Natchitoches.

In the JULY REVIEW, under VERIFICATION of INDICA-TIONS, pages fourteen and fifteen, the following corrections should be made, viz:

The general average per centage should read, 90.65 per nt. The middle and south Pacific coast regions should read

100 per cent., respectively.

There were seventy-four omissions to predict, (thirty-seven being due to the abscence of reports from the Pacific coast.) Of the 3,739 predictions that were made, twenty-nine or 0.78 The extreme drought is proving disastrous to corn and potates in Dutchess county. New York city, 7th: The hot and ified; two hundred and thirty-two or 6.21 per cent. were onevarious kinds of crops. Corn, which promised well during the were three-fourths verified and 2,793 or 74.69 per cent, were

PUBLISHED BY ORDER OF THE SECRETARY OF WAR:

W. B. HAZEN.

Brig. & Byt. Maj. Gen'l. Chief Signal Officer, U.S.A.

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